

**CALIFORNIA AIR TOXICS
"HOT SPOTS"
INFORMATION AND ASSESSMENT
ACT (AB 2588)**

**2014 Air Toxics "Hot Spots"
Program Report
for
San Diego County**

(Date of Adoption)

**SAN DIEGO COUNTY
AIR POLLUTION CONTROL DISTRICT**
10124 Old Grove Road
San Diego, CA 92131

2014 Air Toxics "Hot Spots" Program Report for San Diego County

TABLE OF CONTENTS

	<u>PAGE</u>
INTRODUCTION	1
BACKGROUND	1
PROGRAM DESCRIPTION AND STATUS	3
Table 1 – Estimated Toxic Air Contaminant Emissions – All Sources	3
Table 2 – Air Resources Board Estimated Toxic Air Contaminant Emissions - Non-Industrial Sources	6
Facility Prioritization	7
Table 3 – Prioritization Categories	8
Health Risk Assessments	8
Table 4 – Health Risk Assessment Results	9
Public Notification and Risk Reduction.....	9
Table 5 - Public Notification and Risk Mitigation Levels	10
Table 6 – Facilities Conducting Biennial Public Notification	11
Recent and Expected Changes to the Program	11
QUALITY OF THE EMISSIONS INVENTORY DATA	12
FEDERAL AND STATE REGULATIONS	12
TOXIC AIR CONTAMINANTS AMBIENT MONITORING	13
Figure 1 - Toxic Air Contaminant Incremental Cancer Risk.....	13
CONCLUSIONS	14
APPENDIX	15

INTRODUCTION

The California Air Toxics "Hot Spots" Information and Assessment Act (AB 2588) was enacted by the Legislature in 1987 to address public concern over the release of toxic air contaminants into the atmosphere. The law requires facilities emitting toxic substances to provide local air pollution control districts with information to identify sources of toxic air contaminants, quantify air toxics emissions, locate resulting "hot spots," notify persons that may be exposed to significant risks, and develop effective strategies to reduce potential risks to the public.

A requirement of the Air Toxics "Hot Spots" Information and Assessment Act (Section 44363 of the California Health and Safety Code) is for local air pollution control districts to provide the public with an annual progress report on the program. This report fulfills that requirement by providing information about emission inventories, approved health risk assessments (HRAs), public notification procedures, and steps undertaken to reduce public health risks. State and local health officials may use the report to establish priorities for developing and implementing air toxic control measures to protect public health.

This report summarizes the AB 2588 program elements, the current status of the program in San Diego County, stationary and mobile emissions estimates, results of local HRAs, current statuses of public notifications, and conclusions drawn from the program to date. Stationary source emission estimates, by facility, are also available on the San Diego County Air Pollution Control District's (District) website (<http://www.sdapcd.org>). This can be accomplished by selecting the Emissions Inventory & Toxics button and then selecting Facility Emissions for San Diego County 1997 - 2013. In addition, stationary source emissions inventories are available upon request for those without internet access.

Although toxic air contaminant emissions from stationary sources in San Diego County have been reduced by approximately 22.8% since 2009, significant amounts of toxic compounds are still emitted into the air from a wide variety of sources including motor vehicles, industrial facilities, household products, area sources, and natural processes. Prioritizing and reducing these emissions further will require a continued collaborative effort amongst the public, industry, environmental groups, the California Air Resources Board (CARB) and the District.

BACKGROUND

The District is the implementing agency for approximately 3,000 San Diego facilities required to comply with the Air Toxics "Hot Spots" Act. The law requires facilities to submit information that is used to achieve the objectives of the program. For larger industrial facilities, this information includes:

- **Emission Inventory Reports** - Facilities must submit the information needed by the District to prepare a toxic emissions inventory report. The District then prioritizes each facility to determine if an HRA is necessary based upon the quantity and toxicity of their reported emissions.

- **Health Risk Assessments** - Facilities required to submit HRAs must determine the level of public exposure to their emitted compounds and the potential adverse public health impacts. The State Office of Environmental Health Hazard Assessment (OEHHA) assists the District in reviewing each HRA.
- **Public Notification** - If an adverse health impact exceeding public notification levels (specified in District Rule 1210) is identified, the facility must provide notice to all exposed persons regarding the results of the HRA.
- **Risk Reduction Audits and Plans** - Facilities with emissions that pose a potentially significant public health risk must submit a Risk Reduction Audit and Plan to the District. The plan must demonstrate how the facility will reduce health risks below significant levels. The facility must implement the plan as approved by the District.

Facilities that are subject to the “Hot Spots” Program are required to update their toxic inventories at least every four years. The District has developed toxic emission inventory reporting procedures that streamline this process while meeting the requirements of the CARB Emissions Inventory Criteria and Guidelines regulation. As a result, facilities are no longer required to perform emission calculations. Instead, the District provides customized inventory forms based upon site-specific equipment information and calculates facility emissions based on process information supplied by the facility operator. Additionally, the District has merged the Toxic Emission Reports with the Criteria Pollutant Emission Reports to eliminate duplicate data requests.

The District has also designed the local program to allow many small businesses to meet inventory requirements more cost-effectively by completing industry-specific reporting forms. The District has standardized and automated many computational and record keeping tasks. In collaboration with CARB, OEHHA, and other air agencies, generic HRAs have been developed for gas stations, dry cleaners, and auto body shops to assess industry-wide impacts. These program enhancements save businesses time and money.

The District is required to review and approve the data submitted by facilities, compile an inventory of emissions, and publish an annual report on the region’s toxic air contaminant emissions, risk assessment results and effectiveness of control measures. These reports are used by health officials to develop strategies for protecting the public health.

Toxic air contaminant emissions should not necessarily be equated with a significant health risk (cancer or non-cancer) to any individual or the public. The quantity and toxicity of the compounds being emitted and the level of public exposure must be known before drawing conclusions about health risks. This report presents data on emissions from several hundred facilities. In some cases, data on public exposure is still being developed, updated, or reviewed. HRAs have been completed for 79 facilities.

This being said, exposure to the toxic compounds in question, in sufficient quantities, can cause health problems ranging from relatively mild temporary conditions such as minor eye or throat irritation, shortness of breath, or headaches to permanent and serious conditions such as cancer, birth defects, or damage to lungs, nerves, the liver, the heart, or other organs.

The District has evaluated at least five toxic emission inventories for most facilities in San Diego County. An estimate of current toxic air contaminant emissions (for calendar years 2010 - 2013) from all sources, industrial and non-industrial, is presented in Table 1 of this report. Detailed site-specific emission results are provided on the District's website.

PROGRAM DESCRIPTION AND STATUS

The industrial source emission estimates provided in Table 1 are for approximately 3,000 facilities including 1,750 diesel engine facilities, 368 auto body shops, 683 gasoline stations, and 117 dry cleaners. Detailed emission inventories for individual facilities are available on the District's website. Estimates of mobile, area, and natural source emissions prepared by CARB are also presented in Table 1. Mobile, area, and natural source estimates are derived from several CARB emission reports. When multiple emission estimates were available, the most recent data were used for a category of source.

Table 1: Estimated Toxic Air Contaminant Emissions - All Sources

Toxic Air Contaminant	Most Recent Emissions from Industrial Sources Estimated for 2013 and later (lbs/yr)	Total Mobile, Area, Natural from CARB (lbs/yr) ⁽¹⁾	Total San Diego County Emissions (lbs/yr)
Ammonia	17,318	13,704,290	13,721,608
Aluminum ⁽²⁾	7,869	12,121,035	12,128,904
Methanol	9,225	5,312,470	5,321,695
Toluene	150,000	4,261,240	4,411,240
Diesel Particulate ^(2,3)	23,795	3,536,120	3,559,915
Xylenes	130,291	3,075,785	3,206,076
Propylene	716	2,783,486	2,784,202
Formaldehyde	59,269	2,518,641	2,577,910
2,2,4-Trimethylpentane	12,198	2,134,035	2,146,233
Acetaldehyde	8,232	1,881,102	1,889,335
Isopropyl Alcohol	145,844	1,437,539	1,583,382
Benzene	12,744	1,465,565	1,478,308
Hexane	47,698	1,112,147	1,159,846
Ethyl Benzene	39,663	805,127	844,790
1,2,4-Trimethylbenzene	94,831	717,938	812,769
Methylene Chloride	30,469	602,661	633,130
Ethylene Glycol	3,052	510,224	513,276
PAH, Unspecified ⁽²⁾	511	499,564	500,074
1,3-Butadiene	1,280	464,800	466,080
Ethylene Glycol Butyl Ether	7,758	457,985	465,742

Table 1: Estimated Toxic Air Contaminant Emissions - All Sources—Continued

Toxic Air Contaminant	Most Recent Emissions from Industrial Sources Estimated for 2013 and later (lbs/yr)	Total Mobile, Area, Natural from CARB (lbs/yr) ⁽¹⁾	Total San Diego County Emissions (lbs/yr)
Chlorine	558	458,437	458,995
Perchloroethylene	53,605	354,201	407,806
Methyl Ethyl Ketone	41,993	337,063	379,056
Phosphorous ⁽²⁾	18	258,007	258,026
Acrolein	1,645	249,368	251,013
Dichlorobenzene	226	244,012	244,239
Naphthalene ⁽²⁾	704	238,432	239,136
Barium ⁽²⁾	56,401	168,806	225,207
Butanol	173,390	25,716	199,106
1,1,1-Trichloroethane	837	150,398	151,235
Zinc ⁽²⁾	2,449	125,538	127,986
Manganese ⁽²⁾	1,061	116,099	117,159
Styrene	8,997	79,133	88,131
Methyl Isobutyl Ketone	29,490	39,548	69,038
Propylene Glycol Methyl Ether	33,400	35,187	68,587
Trichloroethylene	5,003	44,218	49,221
Lead ⁽²⁾	107	41,803	41,910
Copper ⁽²⁾	1,565	29,566	31,131
Phenol	3,293	15,183	18,476
Chromium, Non-Hexavalent ⁽²⁾	229	13,179	13,408
Arsenic ⁽²⁾	35	8,909	8,944
Cobalt ⁽²⁾	4	7,447	7,451
Nickel ⁽²⁾	356	6,627	6,983
Chromium, Hexavalent ⁽²⁾	7	6,756	6,763
Ethylene Oxide	0	3,766	3,766
Cadmium	22	2,297	2,318
Methyl Methacrylate	995	705	1,700
Mercury ⁽²⁾	39	1,636	1,674
Ethylene Glycol Ethyl Ether Acetate	46	1,496	1,543
Thallium ⁽²⁾	13	1,360	1,373
Vinyl Acetate	25	1,127	1,152
Chlorobenzene	318	745	1,062
Ethylene Glycol Ethyl Ether	1	1,027	1,028
Selenium ⁽²⁾	15	1,003	1,018
Dibutyl Phthalate	42	827	868
Methylene Diphenyl Isocyanate	41	562	603
Methyl Tert-Butyl Ether	0	575	575
Silver ⁽²⁾	28	544	572
Ethylene Glycol Methyl Ether	5	53	58
Propylene Oxide	0	11	11
Cyclohexane	no data available	370,857	Unknown

Table 1: Estimated Toxic Air Contaminant Emissions - All Sources—Continued

Toxic Air Contaminant	Most Recent Emissions from Industrial Sources Estimated for 2013 and later (lbs/yr)	Total Mobile, Area, Natural from CARB (lbs/yr) ⁽¹⁾	Total San Diego County Emissions (lbs/yr)
Silica, Crystalline ⁽²⁾	142,943	no data available	Unknown
Hydrogen Chloride	53,505	no data available	Unknown
Glycol Ethers, Unspecified	26,552	no data available	Unknown
Hydrogen Sulfide	19,326	no data available	Unknown
Hydrogen Fluoride	10,096	no data available	Unknown
Chlorobenzotrifluoride, para	5,475	no data available	Unknown
Dimethyl Sulfide	5,065	no data available	Unknown
Isocyanates, Unspecified	2,740	no data available	Unknown
Vinyl Chloride	2,135	no data available	Unknown
Ethylene Dichloride	2,017	no data available	Unknown
Chlorofluorocarbons	1,548	no data available	Unknown
Dioxane, 1,4-	1,521	no data available	Unknown
Nitric Acid	1,485	no data available	Unknown
Chloroform	1,138	no data available	Unknown
Carbon Disulfide	800	no data available	Unknown
Acrylonitrile	477	no data available	Unknown
Carbonyl Sulfide	307	no data available	Unknown
Carbon Tetrachloride	258	no data available	Unknown
M-Pyrol	230	no data available	Unknown
Vinylidene Chloride	196	no data available	Unknown
Propylene Glycol	148	no data available	Unknown
Quinone	111	no data available	Unknown
Sodium Hydroxide ⁽²⁾	50	no data available	Unknown
Benzyl Chloride	12	no data available	Unknown
Acrylamide	4	no data available	Unknown
Beryllium ⁽²⁾	1	no data available	Unknown
Sulfuric Acid	1	no data available	Unknown
Ethylene Dibromide	0	no data available	Unknown
Total	1,497,865	62,843,978	64,341,843 ⁽⁴⁾

1. Emission data obtained from CARB's 2008 California Toxics Inventory.

2. This toxic air contaminant is emitted as a particulate.

3. The estimate of diesel particulate matter emissions are from stationary diesel internal combustion engines only. Individual toxins of diesel particulate matter (i.e., arsenic, cadmium, copper, hexavalent chromium, lead, nickel, selenium, and zinc) from sources other than stationary diesel internal combustion engines are reported separately in above table.

4. Total of most recent available estimates for industrial, mobile, area, and natural sources.

Overall, local emissions of toxic air contaminants from industrial sources have decreased by approximately 22.8% since 2009. The most significant reductions include a variety of solvents and heavy metals. Emission increases are primarily the result of increased usage of reformulated paints, solvents, and gasoline. Emission estimates for some compounds have increased, although the actual emission levels may not have changed. This is due to changes in combustion-related emission factors and newly listed toxic air contaminants not included in initial inventories.

Countywide emissions for non-industrial sources (mobile, area, and natural sources) are presented in Table 1. Emissions for the mobile, area, and natural source subcategories are presented in Table 2. Mobile sources include on-road vehicles, off-road vehicles, trains, mobile equipment, and utility equipment. Area sources include residential and commercial non-point sources such as fuel combustion, entrained road dust, waste burning, solvent use, pesticide application, and construction and demolition. Natural sources include wildfires and windblown dust from agricultural operations and unpaved areas.

Emissions of toxic air contaminants were obtained from CARB's 2008 California Toxics Inventory for non-industrial sources (released in December 2008) which may be found at <http://www.arb.ca.gov/toxics/cti/cti.htm>.

Table 2: CARB Estimated Toxic Air Contaminant Emissions – Non-Industrial Sources

Toxic Air Contaminant	Mobile Source (lbs/yr)	Area Source (lbs/yr)	Natural Source (lbs/yr)	Total Mobile, Area, Natural from CARB (lbs/yr)
Ammonia	3,872,504	7,802,824	2,028,962	13,704,290
Aluminum	1,697	12,114,847	4,491	12,121,035
Methanol	104,969	488,729	4,718,772	5,312,470
Toluene	3,429,983	831,257		4,261,240
Diesel Particulate Matter	3,536,120			3,536,120
Xylenes	3,039,683	36,102		3,075,785
Propylene	1,879,831	52,499	851,157	2,783,486
Formaldehyde	2,406,814	111,826		2,518,641
Trimethylpentane, 2,2,4-	2,045,047	88,988		2,134,035
Acetaldehyde	969,207	89,599	822,296	1,881,102
Benzene	1,458,295	7,269		1,465,565
Isopropyl Alcohol		1,437,539		1,437,539
Hexane	836,500	275,647		1,112,147
Ethyl Benzene	759,473	45,654		805,127
Trimethylbenzene, 1,2,4-	675,942	41,996		717,938
Methylene Chloride		602,661		602,661
Ethylene Glycol		510,224		510,224
PAHs, Unspecified	384,477	111,909	3,178	499,564
Butadiene, 1,3-	334,291	26,663	103,846	464,800
Chlorine	160,981	258,436	39,020	458,437
Ethylene Glycol Butyl Ether		457,985		457,985
Cyclohexane	347,193	23,664		370,857
Perchloroethylene		354,201		354,201
Methyl Ethyl Ketone	137,455	199,608		337,063
Phosphorus	1,161	254,738	2,108	258,007
Acrolein	158,063	19,635	71,670	249,368
Dichlorobenzene		244,012		244,012
Naphthalene	151,170	87,262		238,432
Barium	51,498	117,308		168,806
Trichloroethane, 1,1,1-		150,398		150,398

Table 2: CARB Estimated Toxic Air Contaminant Emissions – Non-Industrial Sources—Continued

Toxic Air Contaminant	Mobile Source (lbs/yr)	Area Source (lbs/yr)	Natural Source (lbs/yr)	Total Mobile, Area, Natural from CARB (lbs/yr)
Zinc	12,816	92,449	20,272	125,538
Manganese	2,787	112,591	720	116,099
Styrene	74,131	5,002		79,133
Trichloroethylene		44,218		44,218
Lead	7,186	34,151	466	41,803
Methyl Isobutyl Ketone		39,548		39,548
Propylene Glycol Methyl Ether		35,187		35,187
Copper	11,965	17,400	201	29,566
Butanol		25,716		25,716
Phenol	6,537	8,646		15,183
Chromium, Non-Hexavalent	2,246	10,934		13,179
Arsenic	6,714	1,951	244	8,909
Cobalt	1,120	6,327		7,447
Chromium, Hexavalent	6,754	2		6,756
Nickel	2,416	4,210		6,627
Ethylene Oxide		3,766		3,766
Cadmium	852	1,444		2,297
Mercury	86	1,550		1,636
Ethylene Glycol Ethyl Ether Acetate		1,496		1,496
Thallium		1,339	21	1,360
Vinyl Acetate		1,127		1,127
Ethylene Glycol Ethyl Ether		1,027		1,027
Selenium	678	293	32	1,003
Dibutyl Phthalate		827		827
Chlorobenzene	56	688		745
Methyl Methacrylate		705		705
Methyl Tert-Butyl Ether	575			575
Methylene Diphenyl Isocyanate		562		562
Silver	50	389	106	544
Ethylene Glycol Methyl Ether		53		53
Propylene Oxide		11		11
TOTALS	26,879,326	27,297,092	8,667,560	62,843,978

Facility Prioritization

The purpose of facility prioritization is to identify facilities that emit toxic air contaminants in amounts that warrant a detailed evaluation of potential public health risks through preparation of a site-specific HRA. Prioritization procedures consider the magnitude of toxic air contaminant emissions from facilities and the toxicity of those emissions, but do not consider the dilution characteristics of a specific facility's exhaust stacks or the expected health risks posed by the emissions. Requiring a facility to prepare a risk assessment does not mean the facility poses a significant risk to public health.

Facilities are placed into three categories: Category A for facilities that are required to prepare and submit an HRA; Category B for facilities that may be required to conduct an HRA at a future date; and Category C for facilities that are not required to conduct an HRA. Ranges of prioritization scores for each category are shown in Table 3.

Table 3: Prioritization Categories

	Prioritization Category		
	A	B	C
Facility Score for carcinogenic compounds	Score ≥ 100	$1 \leq \text{Score} < 100$	Score < 1
Facility Score for Non-carcinogenic compounds	Score ≥ 10	$1 \leq \text{Score} < 10$	Score < 1

Facilities are reprioritized based on their most recently approved toxic emissions inventory report. Prioritization procedures can be found on the District's website at <http://www.sdapcd.org/toxics/prioritize.pdf>.

Health Risk Assessments

An HRA is a study of the possible public health risks that may be posed by emissions of toxic compounds. Each facility that has been placed in Category A must prepare and submit an HRA to the District.

The assessment incorporates conservative pollutant dispersion estimates, human exposure assumptions, and health effects information to ensure that the final risk assessments are not underestimated. Accordingly, the results of a risk assessment may overstate actual health risks but are useful in comparing the relative risks of sources and pollutants and setting priorities for mitigation. For example, a risk assessment typically will estimate the increased cancer risk for a hypothetical individual who would remain at the one location with the greatest potential for exposure to toxic air contaminant emissions from the facility for 24 hours a day, 365 days per year, over 70 years.

While the HRA procedures are generally considered to be conservative, some factors that may tend to underestimate impacts are difficult to evaluate. For example, an HRA is based on emission estimates for the indicated inventory year. These emissions are assumed to occur for 70 years to obtain a "lifetime" cancer risk. In reality, the emissions from the same facility are likely to be higher or lower during years not evaluated in the HRA. Additionally, the cumulative effect of emissions from other nearby mobile, area, and stationary sources and the potential for complex mixtures of toxic air contaminants to create additional health problems by their combined reaction to each other cannot be estimated. Also, some facility emission estimates are based on average factors for individual types of equipment and actual emissions may be higher or lower. Finally, the HRA results only include potential impacts from compounds with OEHHA-approved health values. Compounds without OEHHA-approved health values are not included.

CARB lists more than 700 compounds to be assessed under the Air Toxics "Hot Spots" Program. The list includes potentially carcinogenic substances as well as compounds that may cause health problems such as respiratory irritation or central nervous system depression. The toxicity varies from compounds that pose a concern if more than a few grams are emitted per day, to those that may pose no significant health risks even if many pounds are emitted per day. OEHHA reviews and updates the toxicity of the listed compounds. This updated information is then distributed to all groups involved in the program for use in identifying facilities required to prepare risk assessments and in preparing the assessments.

Each HRA is reviewed by the District and OEHHA to identify deficiencies requiring correction. The District then approves, modifies, or returns the HRA for corrections. The results of all risk assessments prepared under this program are available for public review. The HRA results of facilities required to implement a risk reduction plan and/or conduct biennial public information notification are presented in Table 4. A list of facilities with previously approved HRAs but that are not required to implement a risk reduction plan and/or conduct biennial public notification are presented in the Appendix.

Table 4: Health Risk Assessment Results

HRA Evaluation Period	Facility		Max. Lifetime Cancer Risk per million ⁽¹⁾	Lifetime Cancer Burden ⁽²⁾	Chronic THI ⁽³⁾	Acute THI ⁽⁴⁾
Facilities required to implement a risk reduction plan and conduct biennial public notification.						
2005	S.D. City Miramar Landfill	San Diego	8.5	0.19	2.06	0.37
2008	GKN Chemtronics	El Cajon	0.38	< 1.0	1.57	4.82
Facilities required to conduct biennial public notification.						
2003	Pacific Ship Repair	San Diego	41	< 1	0.24	< 0.1
2005	S.D. City Pump Station 2	San Diego	33	< 1.0	0.3	0.1
2009	National Steel & Shipbuilding	San Diego	21.2	0.38	0.57	0.76
2005	USN Air Station/North Island	Coronado	13.5	0.19	< 0.1	0.72

1. This column reports the maximum lifetime excess cancer risk estimate at an occupational or residential receptor (whichever is greater) approved by the District. The maximum estimated risk generally is possible at only one location. All other locations show lower risks. This estimate assumes that a person resides at the location of maximum impact 24 hours per day, 365 days per year with 70 years of exposure, or a person works at the location of maximum impact 8 hours per day, 245 days per year, with 40 years of exposure. Actual cancer risk will likely be less.
2. Excess cancer burden is an estimate of the increased number of cancer cases in a population (i.e., all census tracts within or partially within the one in one million isopleth) as a result of exposure to emitted substances. Actual cancer burden will likely be less.
3. Chronic total health hazard index (THI) is the sum of the ratios of the average annual exposure level of each compound to the compound's Reference Exposure Level (REL). Actual chronic THI will likely be less.
4. Acute THI is the sum of the ratios of the maximum one-hour exposure level of each compound to the compound's REL. Actual acute THI will likely be less.

Public Notification and Risk Reduction

Once an HRA has been approved the Air Toxics "Hot Spots" Program requires facilities with risks over specified levels to provide public notice to all exposed persons. In addition, facilities with significant risks are required to reduce risks below the significant risk levels within five years. The California Health and Safety Code does not define "significant risk." The District, in consultation with interested parties, established public notification and significant risk levels (as

well as public notification and risk reduction procedures) in District Rule 1210. These levels are presented in Table 5.

Table 5: Public Notification and Significant Risk Levels

	Public Notification Level	Significant Risk Level
Maximum Incremental Cancer Risk	10.0	100.0
Cancer Burden	1.0	1.0
Total Chronic Noncancer Health Hazard Index*	1.0	1.0
Total Acute Noncancer Health Hazard Index*	1.0	1.0
* A value greater than 1.0 but less than 5.0 would not trigger public notification or risk reduction requirements if the Air Pollution Control Officer determines, after consultation with OEHHA, that adverse public health effects are unlikely to occur at the levels of exposure estimated in the approved public health risk assessment.		

In establishing public notification procedures, the District considered input from the California Air Pollution Control Officers Association's *Air Toxics "Hot Spots" Program Public Notification Guidelines* (October 1992), CARB guidance, other regulatory precedents, public workshops, and a local public notification committee consisting of representatives from the District, local industry and industry groups, academic institutions, and environmental organizations. The procedures are generally consistent with procedures adopted by other California air districts.¹

Facilities required to perform public notification must distribute notices to each household and business that may be exposed to potential risks exceeding the District's public notification level. Notifications must be issued biennially until the facility demonstrates to the District that it has reduced the potential health risk below the notification thresholds.

As of March 2015, there were 20 facilities with estimated risks above public notification levels and they have been required to inform the public of their most recent approved HRA results. Based on the response from the public, four facilities (Flame Spray Inc., National Steel & Shipbuilding, Palomar Plating, and Senior Flexonics-Ketema Division) were required to hold public meetings to provide further information regarding their emissions and their HRA results.

Public notification is required biennially based on the most recent approved HRA until it is demonstrated that potential health risks have been reduced below public notification levels. Table 6 lists the facilities currently required to conduct biennial public notification.

¹ The South Coast Air Quality Management District has revised its cancer risk mitigation threshold to 25 in one million.

Table 6: Facilities Required to Conduct Biennial Public Notification

HRA Evaluation Period	Facility	Most Recent Notification Date
2008	GKN Chemtronics El Cajon	2013
2009	National Steel & Shipbuilding San Diego	2013
2003	Pacific Ship Repair San Diego	2013
2005	S.D. City – Pump Station 2 San Diego	2013
2005	S.D. City – Miramar Landfill San Diego	2012
2005	USN Air Station / North Island* Coronado	2014

* USN Air Station North Island successfully implemented a risk reduction plan for acute risk. The acute HRA result is based on an updated 1998 acute HRA. USN Air Station North Island is required to conduct public notifications for potential cancer risk from a gas station. The cancer and chronic HRA results are based on 1993 HRA.

Under Rule 1210, facilities with potentially significant public health risks must reduce those risks below significant risk levels within five years of the approval of a risk reduction plan. Of the 90 approved HRAs under the "Hot Spots" Program, six active facilities had estimated risks above the significant risk mitigation levels. Nine facilities prepared and implemented a risk reduction plan. GKN Chemtronics' risk reduction plan is currently in effect and is under review for possible updates by the facility and the District. This facility is allowed five years to implement the risk reduction plan. Of all the facilities required to reduce their risks, all but three facilities successfully reduced their risks below public notification levels. The USN Air Station reduced their acute risks substantially but must continue biennial public notification because of residual cancer risks. Southern California Plating and Vision Systems completed the process of implementing a risk reduction plan and their risks are now below the public notification levels.

Recent And Expected Changes To The Program

Changes to the Air Toxics "Hot Spots" Act in 1992 required that OEHHA develop risk assessment guidelines for the Air Toxics "Hot Spots" Program, including a "likelihood of risks" approach to risk assessment. OEHHA has developed and published documents providing guidance for HRA work. These documents are: of: (1) *The Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments*, (2) *Technical Support Document for the Derivation of Noncancer Reference Exposure Levels*, (3) *Technical Support Document for Cancer Potency Factors: Methodologies for derivation, listing of available values, and adjustments to allow for early life stage exposures*, and (4) *Technical Support Document for Exposure Assessment and Stochastic Analysis*. To supplement OEHHA's guidelines, CARB provided a document titled *Recommended Interim Risk Management Policy for Inhalation-Based Residential Cancer Risk*.

In February 2012, OEHHA presented a draft version of their *Technical Support Document for Exposure Assessment and Stochastic Analyses* for public comment. This document addresses the 8-hour RELs, the age sensitive adjustments and updates to the cancer potency. On March 2012, OEHHA approved modified non-cancer health data for nickel with the main effect being the acute toxicity increased 30 times. In March 2015, OEHHA finalized updates to *The Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments*. These changes

consider the varying breathing rates of different age groups. The combined effect of these updates will, in most cases, result in a higher calculated risk. The higher calculated risk may range from a very small increase to as much as a factor of 2.7, depending on exposure type and other parameters. The District is working with stakeholders to develop tools and guidance to streamline the implementation of these new health risk assessment procedures.

The District is working on a contract with an outside vendor to build a new emissions inventory system (EIS). The new EIS will be a database application designed to accept and present information via the internet. The new EIS will allow regulated facilities to provide emissions inventory data to the District and will enable the public to view the approved emissions inventory data via the internet.

QUALITY OF THE EMISSIONS INVENTORY DATA

The District's website contains approved emission estimates for each facility inventoried. These emissions were determined using several different techniques, depending on the specific processes being evaluated.

Uniform and comprehensive toxic air contaminant guidelines do not exist for many types of processes. In these cases, emissions are estimated by conducting source tests, reviewing previous evaluations of similar operations, comparing materials used, or applying best engineering judgment. Accordingly, a comparison of emissions among similar processes may not be appropriate especially when comparing old emissions with more recent emissions.

FEDERAL AND STATE REGULATIONS

The control of air toxic contaminants is required through federal and state laws and local regulations. The District has been delegated authority from the U.S. Environmental Protection Agency (EPA) to locally administer Federal National Emission Standards for Hazardous Air Pollutants (NESHAPs). Additionally, the District administers State Airborne Toxic Control Measures (ATCMs) that pertain to stationary sources.

At the federal level, the 1990 Clean Air Act (CAA) Amendments require the EPA to develop nationwide control measures for air toxics. The Federal CAA now lists 187 substances as hazardous air pollutants (HAPs) and the EPA develops the NESHAPs for large and small sources of HAPs. Under state law, newly adopted federal NESHAPs become state ATCMs automatically, unless the state elects to adopt a separate regulation.

At the state level, CARB continues to develop ATCMs under the Toxic Air Contaminant Identification and Control Program (AB 1807, or the Tanner Program). Once ATCMs are adopted by CARB the local air districts must implement those emission reduction measures as they pertain to stationary sources of air pollutants.

During this reporting period, the District has undertaken outreach efforts and worked with affected sources to ensure compliance with Federal NESHAPs and State ATCMs. Additionally, the District continued to enforce local rules designed to reduce toxic air contaminant emissions along with other District rules to control criteria air pollutants and their precursors.

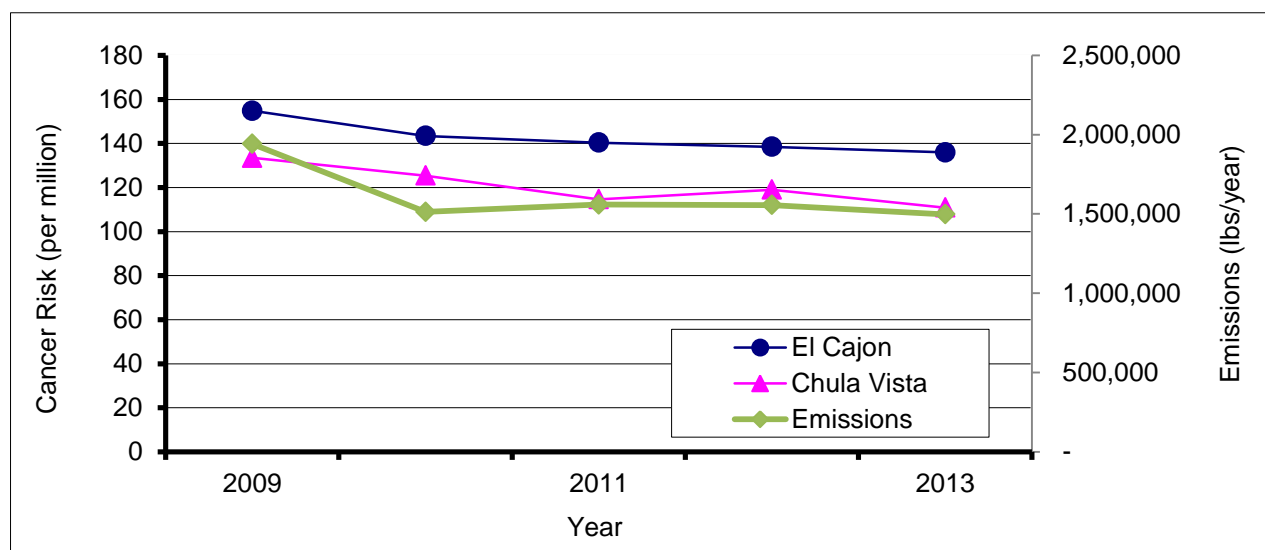
TOXIC AIR CONTAMINANTS AMBIENT MONITORING

The District started sampling for toxic air contaminants at the El Cajon and Chula Vista air monitoring stations in the mid-1980s. This work, which is carried out in collaboration with CARB, provides information on ambient levels of a number of organic and inorganic toxic compounds. Integrated 24-hour air sampling is performed once every twelve days by the District and CARB analyzes the samples and validates those data. Then, CARB publishes detailed toxic sampling results from all California monitoring sites on its website (<http://www.arb.ca.gov/adam/toxics/sitesubstance.html>). A summary of the CARB-approved results for the two San Diego County air toxic monitoring stations is provided in Figure 1.

Excluding diesel particulates, a 16.9% reduction in the ambient incremental cancer risk from air toxics has been measured in Chula Vista and a 12.2% reduction has occurred in El Cajon since 2009, as shown in Figure 1. The estimated cancer risks were 111 in one million for Chula Vista and 136 in one million for El Cajon in 2013.

Diesel particulate matter also contributes significantly to ambient risk levels. Although a method does not exist to directly monitor diesel particulate concentrations, CARB has suggested methods that can be used to estimate diesel concentrations. Based on District measurements of elemental carbon taken at El Cajon, Escondido and San Diego between August 2008 and June 2010, diesel particulate emissions could add an additional 354 in one million to the ambient risk levels in San Diego County. CARB estimates that risk from diesel particulate decreased by about 50% from 870 in one million since 1990.

Figure 1 – Toxic Air Contaminant Incremental Cancer Risk* and Toxic Emissions



* Does not include risk from diesel particulate matter from engines.

CONCLUSIONS

Motor vehicles, area sources, and natural sources are key contributors to the toxic air contaminants in San Diego County's air, as they annually emit more than 62.5 million pounds into the atmosphere according to CARB's *2008 California Toxics Inventory*. Although industrial facilities emit toxic air contaminants, such emissions from industrial sources have been reduced by approximately 22.8% since 2009. Based on the most recent estimates the sites that have been inventoried emit less than 1.5 million pounds of toxic air contaminants annually. Tables 1 and 2 provide the current inventories of toxic pollutants for stationary, mobile, area, and natural sources. The majority of local facilities are in compliance with current District emission standards, which now focus on both criteria air pollutants (e.g., volatile organic compounds, oxides of nitrogen, particulate matter) and toxic air contaminants. When non-compliance is determined, the facility and District work closely to bring a prompt return to compliance.

Current and future air quality programs at the local, state and federal levels will further reduce toxic air contaminant emissions. Measures to reduce vehicle trips and miles traveled will reduce tailpipe emissions of toxic air contaminants that result from the combustion of gasoline. Ongoing measures to reduce emissions of volatile organic compounds (which are ozone precursors) will also decrease emissions of toxic volatile organic compounds. Additionally, OEHHAs recent updates to the *The Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments* document will likely result higher risks being calculated for the same emissions. With higher risks being calculated, more facilities will be challenged to decrease their risk when required by existing rules and regulations. As the District implements this change, more emission reductions will be realized.

Approximately 0.44 million pounds of industrial toxic emissions reductions have been quantified in San Diego County between 2009 and 2014. Ongoing implementation of the Air Toxics "Hot Spots" Program will continue to incrementally reduce the emissions of toxic air contaminants, resulting in reduced public health risks associated with those air pollutants. Those efforts will improve information on levels of exposure and risk as well as identifying compounds, processes, and facilities that are potentially causing significant risks.

APPENDIX

HRA Evaluation Period	Facility	
Facilities that have implemented a risk reduction plan and currently have risks below the public notification level.		
1995	Flame Spray Inc.	San Diego
1994	Hues Metal Finishing	San Marcos
1994	Senior Flexonics, Ketema Division	El Cajon
1993	Signet Armorlite	San Marcos
2013	Southern California Plating	San Diego
1993	USN Amphibious Base	Coronado
2005	Vision Systems	El Cajon
Facilities not required to implement a risk reduction plan and not required to conduct biennial public notification.		
1989	ARCO	San Diego
1993	Asphalt Inc.	Lakeside
2006	BF Goodrich / Rohr Industries	San Diego
1989	Bonsall Landfill	Vista
1989	Cabrillo Power / SDG&E / Encina Plant	Carlsbad
2003	Cabrillo Power II LLC - Kearny Mesa	San Diego
1989	Chevron USA Inc.	San Diego
2004	City of Oceanside - Water Utilities	Oceanside
1994	Continental Maritime	San Diego
1993	Deutsch Co.	Oceanside
1989	Equillon Enterprises / Shell Oil Co / Mission Rd	San Diego
1993	Frazee Paint	San Diego
2003	Goal Line	Escondido
1993	Hanson Aggregates / H.G. Fenton / Carrol Cyn.	San Diego
1993	Hanson Aggregates / Nelson & Sloan / Tri Way	Lakeside
1993	Hanson Aggregates / Sim J. Harris	San Diego
1993	Hanson Aggregates / South Coast Materials	Carlsbad
1993	Hanson Aggregates/H.G. Fenton/East County Mtls	El Cajon
1993	Hanson Aggregates/Nelson & Sloan/7 th & Main	Chula Vista
1993	Hanson Aggregates/Nelson & Sloan/Birch Quarry	Chula Vista
1989	Kelco/Div. Merck & Co. Inc.	San Diego
2003	Kyocera America	San Diego
2003	Neptune Society	El Cajon
1994	Ogden Power Pacific	Chula Vista
1989	Otay Landfill	San Diego
1989	Palomar Airport Landfill	Carlsbad
2003	Palomar Medical Center	Escondido
1989	S.D. City Pt. Loma Waste Water Treatment. Plant	San Diego
1989	San Marcos Landfill	San Marcos
1993	Santa Fe Pacific Pipeline	San Diego
1993	Solar Turbines / Pacific Hwy	San Diego
1993	Solar Turbines / Ruffin Rd	San Diego
1989	Sony	San Diego
1989	Southern California Edison Co.	San Onofre
2004	Southwest Airlines	San Diego
1993	Southwest Marine	San Diego
2004	Space & Naval Warfare Systems	San Diego
1993	Superior Ready Mix / Canyon Rock	San Diego
1989	Sycamore Landfill	San Diego
1989	Texaco Refining & Marketing, Inc.	San Diego
1989	UCSD Campus	San Diego
2004	United Airlines	San Diego
1989	USMC Base/Camp Pendleton	Pendleton

Appendix – continued

HRA Evaluation Period	Facility
Facilities not required to implement a risk reduction plan and not required to conduct biennial public notification – cont.	
2005	USMC Miramar / USN Miramar San Diego
2005	USN Navy Station, 32 nd St. San Diego
2005	USN Point Loma Naval Complex San Diego
2003	Veterans Administration Hospital San Diego
1989	Vulcan / CALMAT Co. / Black Mountain Rd San Diego
1989	Vulcan / CALMAT Co. / Friars Rd San Diego
1989	Vulcan / CALMAT Co. / Hwy 76 Pala
1993	Wyroc Vista
Facilities not required to implement a risk reduction plan and not required to conduct biennial public notification	
1999	Chromalloy San Diego El Cajon
2004	Pacific Gas Turbine San Diego
1989	San Diego State University San Diego
Facilities with previous health risk assessment results.	
1993	BF Goodrich / Rohr Industries Chula Vista
1993	GKN Chemtronics, Inc. El Cajon
2005	National Steel & Shipbuilding San Diego
1993	National Steel & Shipbuilding San Diego
2002	Southern California Plating San Diego
2009	Southern California Plating San Diego
1993	USMC Miramar / USN Miramar San Diego
1993/1998	USN Air Station/North Island Coronado
1993	USN Navy Station, 32 nd St. San Diego
1993	USN Point Loma Naval Complex San Diego
2005	Vision Systems El Cajon
Facilities that have ceased operation.	
1989	Cabrillo Power / SDG&E / 32nd St. Naval Station San Diego
1989	Cabrillo Power / SDG&E / Naval Training Center San Diego
1989	Cabrillo Power/SDG&E Company/USN North Island Coronado
1995	Campbell Marine San Diego
1989	Duke Energy / SDG&E / South Bay Plant Chula Vista
1995	Escon Tool and Manufacturing San Marcos
1989	General Dynamics / Kearny Villa Rd San Diego
1989	General Dynamics / Pacific Hwy San Diego
1989	Knight & Carver Inc. / Hancock St San Diego
1995	Palomar Plating Escondido
1989	Powerine Oil Co. San Diego
1993	Teledyne Ryan Aeronautical San Diego